DOCUMENT RESUME

ED 216 080 UD 022 266

AUTHOR	Barnes, Robert E.; Milne, Ann M.
TITLE	Size of the Eligible Language Minority Population. Final Report. Draft.
INSTITUTION	Department of Education, Washington, D.C. Office of Planning, Budget, and Evaluation.
PUB DATE	25 Sep 81
NOTE	52p.; Not available in paper copy due to reproduction quality of original document.
AVAILABLE FROM	U.S. Department of Education, 400 Maryland Avenue, S.W., Office of Planning, Budget, and Evaluation, Room 3127, Washington, DC 20202 (write for price).
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Bilingual Education; *Bilingual Students; Court Litigation; *Definitions; Elementary Secondary Education; *Eligibility; *English (Second Language); Federal Legislation; *Measurement Techniques; Minority Group Children; Public Policy; State Departments of Education
IDENTIFIERS	Childrens English and Services Study; Civil Rights Act 1964 Title VI; Elementary Secondary Education Act Title VII; *Limited English Speaking; Survey of Income and Education; Sustaining Effects Study

ABSTRACT

This paper develops a revised estimate of the number of children eligible for bilingual services based on the contention that the figure being used by the Department of Education is an overestimate. The current estimate of 3.6 million, which was derived from the Children's English and Services Study (CESS), is believed to be based on excessively high cutoff scores on the CESS test of English proficiency, and to include children who may not be entitled to services because they do not depend on a non-English language or becuase they are not in school. Drawing on legislative and court provisions for bilingual education, the paper explores alternative definitions of the following criteria to delimit the eligible populations: base populations; sufficient limitation in English; and dependence on a non-English language. Using the definitions, the paper generates new estimates by: (1) reanalyzing the CESS data to exclude nonrelevant populations; (2) incorporating a more realistic criterion for limited English proficiency derived from the Sustaining Effects Study (SES); (3) extrapolating estimates to the school universe using Survey of Income and Education (SIE) data; and (4) comparing derived estimates with estimates from other sources. The revised estimates are considered more reliable and more reasonable for Federal policy purposes. (Author/MJL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED216080

SIZE OF THE ELIGIBLE LANGUAGE MINORITY POPULATION

September 25 1981

DRAFT FINAL REPORT

BEST COPY AVAILABLE

Robert E. Barnes
Policy Analyst
U.S. Department of Education

with the assistance of

Ann M. Milne
Senior Research Associate
AUI Policy Research

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

This paper was authored by a staff member of the Office of Planning, Budget, and Evaluation. The paper does not represent the official position of the U.S. Department of Education.

UD 022 266

SUMMARY

Size of the Eligible Language Minority Population

An accurate estimate of the number of children who require special language services is critical to the development of effective Federal policies toward language-minority children. Estimates currently used by the Department of Education rely on the figure of 3.6 million eligible children from the Children's English and Services Study (CESS). We believe this figure is nearly three times the actual eligible population.

Drawing on rules proposed by the Department of Education to implement the Lau decision and on legislation authorizing Title VII of ESEA, Sections I and II of the paper explore alternative definitions of base populations (the most inclusive group that must be screened for service eligibility), sufficient limitation in English, (limited ability to benefit from regular classroom instruction) and dependence on a non-English language (as separate from limitation in English).

Using these definitions to successively delimit the eligible population, the paper develops revised estimates of this population through four approaches:

- Reanalysis of the CESS data using categories of language dependence in the larger Survey of Income and Education (SIE) to exclude nonrelevant populations;
- Incorporation of a measure of reading comprehension from the Sustaining Effects Study (SES) to provide more reasonable cutoffs for limited-English proficiency and extrapolation to the school universe through the use of SIE;
- Comparison of our derived estimates with figures from the 1978 School Survey conducted by the Office for Civil Rights; and
- State-level estimates for three States supplied by the States themselves.

In Section III we note that the original CESS study estimates may be too high for two reasons: (1) excessively high cutoff scores on the CESS test of English proficiency, and (2) inclusion of children who may not be entitled to bilingual services because they are not dependent on a non-English language or because they are not attending school. That is, of the total estimated by CESS to be eligible for services, 16 percent speak English exclusively, and 56 percent usually speak English. Reanalysis of the CESS data to exclude the nonrelevant populations produced a figure of 1.2 million eligible children in the public school universe, grades K-12, or 1.3 million if the private school universe is included.

In Section IV the paper presents a comparison of the CESS and SES studies which allows us to estimate a more realistic criterion score for limited-English proficiency. This is done by establishing the rates of language-minority children in the SES study performing below the 25th or 40th percentile on nationally-normed tests. These rates are then applied to categories of SIE children with a non-English language dependence comparable to that of the SES students. By this method we estimate .6 to .7 million eligible children in the public school universe, grades K-12, or .7 to .8 million children including those in private schools.

Section V discusses two other sources of evidence that confirm our range of estimates. The OCR data estimate .9 million children who usually use a non-English language, although they may or may not be limited-English-proficient. Finally, for three States we compare State-level estimates of eligible children from four sources, one being the States themselves. All figures are generally within the same range, with the exception of the CESS estimates, which are 2 to 3 times higher than the others.

In Section VI we conclude that our estimates of eligible children—not more than 1.5 million and perhaps less than 1 million—are the reasonable figures for Federal policy purposes. They conform more closely than the currently used CESS estimate of 3.6 million to the definitions reflected in policy language, and they are based on multiple sets of evidence.

I. INTRODUCTION

An accurate estimate of the number of children who require special language services is critical to the development of effective Federal policies toward language minority children. This study was initially undertaken to assess the cost and service requirements under the Department of Education's proposed rules (August 5,1980) issued to protect the civil rights of language-minority children under Title VI of the Civil Rights Act, based on the Supreme Court's decision in the Lau case.

Although these rules were eventually withdrawn, the size of the target population remains a major issue. The Department is still in the process of defining appropriate remedies under Lau, and the costs and service impacts of new rules will also have to be determined. Moreover, accurate knowledge of the size of the population at risk is critical to assessing the adequacy of Federal Civil Rights guarantees. Finally, the number of children in need of language instruction is essential information for developing the annual appropriation for the Federal bilingual education program (Title VII of the Elementary and Secondary Education Act). This program provides funds to assist districts in developing their capacity to provide bilingual instruction.

When this study was initiated, the Department used a figure of 3.6 million children as its estimate of the number of children with a potential entitlement to special remedies under Lau (Federal Register, August 5, 1980, p. 52053). This figure was also used in estimating the number of children that might require services under Title VII (Department of Education, 1980a). The estimate of 3.6 million, derived from the Children's

English and Services Study (CESS) (O'Malley, 1981), represented the number of school-age language-minority children who were limited-English-proficient. The relevance of this estimate for Federal policy is by no means clear, however, because the population in question was defined to include children not enrolled in school, children making no significant use of a non-English language, and others clearly able to benefit from English language instruction.

We estimate that the target population of children who have serious difficulty in school because of a non-English language problem is in the range of .7 to 1.3 million, or about one-third of the 3.6 million figure estimated by CESS. These estimates are based on figures derived from studies conducted prior to the recent wave of Indochinese, Cuban, and Haitian refugees. To include this population, we would estimate another 250,000 children (Department of Education, 1980b).

Our results are obtained from two sources. One is a reanalysis of CESS to correct for some of its definitional deficiencies. The second is an analysis of home language and reading-achievement data on a national sample of public elementary pupils from the 1977 Sustaining Effects Study.* The results from these two sources are then compared with data collected from the 1978 Office of Civil Rights Survey (OCR) of public schools and with data for selected States.

---

* Both sources also rely on data from a third major survey—the 1976 Survey of Income and Education (SIE). This survey of 155,000 households provides detailed information on language background for the entire school-age population. Thus, CESS generated the 3.6 million estimate for 4 to 18-year-olds by using the SIE data to extrapolate from the results of its study of children ages 5-14. Similarly, the SIE data are essential in estimating the reading-achievement performance of language-minority students in all grades of public school (K-12), since the Sustaining Effects Study data pertain exclusively to children in grades 1 through 6.

Our analyses of these two basic sources--CESS and the Sustaining Effects Study--are presented below in Sections III and IV. In Section V we present data from the OCR survey and data from some States. Since it is well known, however, that differences in estimates reflect differences in purpose and methodology, we commence with these. Accordingly, the next section examines the legislative and regulatory mandates to which our estimates must answer. Finally, our concluding section summarizes the findings and draws implications for future population studies, including those from the 1980 Census.

II. DEFINITIONAL AND METHODOLOGICAL ISSUES

Definitional Issues

Since the Lau case, legislators and government officials have struggled to develop a set of definitions that would lend themselves to practical remedies. At the heart of the Lau decision is the recognition that language barriers can have the effect of denying children a meaningful opportunity to benefit from public education. In such cases, public school systems have an obligation to provide special instruction designed to overcome these barriers (under Title VI of the 1964 Civil Rights Act), and under the same law the Department of Education (as a Federal agency extending financial assistance to public school systems) has an obligation to protect the rights of such children.

While the language-barrier concept is clear enough in the extreme case of children totally dependent on a non-English language, we know that language-barrier problems are more often a matter of degree. Most children with a non-English background attending public schools have some comprehension of English, and most of them do not rely exclusively on a non-English

language outside the school. Accordingly, we have two interrelated problems: defining what constitutes sufficient limitation in English, and defining dependence on a non-English language. Assuming that practical criteria are developed for making these two determinations, we must also define the base population--that is, the most inclusive set of children to whom these criteria should be applied in arriving at a determination of children eligible for special remedies.

In what follows, we will examine two major statements of Federal policy for the light they shed on each of these definitional issues.

Title VII of the Bilingual Education Act

This program is intended to provide Federal resources to assist schools in developing their capacity to provide bilingual instruction. Thus, national estimates of eligible children are of interest for evaluating appropriation levels for this program, while local or regional estimates can contribute to a more equitable apportionment of available funds, based on differences in relative needs.

The 1974 Amendments, which contained a mandate to count the eligible population, offered the following definition:

> The terms limited English-speaking ability when used with reference to an individual, means--
>
> (a) individuals who were not born in the United States or whose native language is a language other than English; and
>
> (b) individuals who come from environments where a language other than English is dominant...and by reason thereof, have difficulty speaking and understanding instruction in the English language. Section 703 (a)(1)

This definition employs "limited-English-speaking-ability" as an umbrella concept that subsumes non-English language background, dependence

on a non-English language, and limitations in English. It sheds no light on the question of what constitutes sufficient difficulty, but at least specifies the language-skills at issue (speaking and understanding) and the relevant context (i.e., instruction).

Concerning the issue of dependence on a non-English language, three possible factors are identified: the individual's first (or "native") language, whether the individual comes "from environments where a language other than English is dominant" (emphasis added), and whether the individual's difficulty with English is "by reason thereof." As applied to children (not otherwise defined), the base population would appear to be all those with any sort of language-minority background by virtue of birth, first-language, or home environment. For purposes of the Title VII program, however, enrollment in an elementary or secondary school might be construed as a further restriction on the base population.

Although the definition just quoted constituted the original mandate for the Children's English and Services Study, Congress further amplified its definition in the 1978 Amendments while the study was in progress. The principal changes were the addition of reading and writing (to speaking and understanding), and an amplification of the meaning of "difficulty." Difficulty (with English) was now defined as "sufficient...to deny such individuals the opportunity to learn successfully in classrooms where the language of instruction is English." Along with these changes, references to limited-English-proficient supplanted the terms, "limited English-speaking ability."

These changes shed some additional light on all three of our definitional issues. First, sufficient difficulty is now defined in terms of opportunity to benefit from classroom instruction. Second, the factor of

non-English language dependence is strengthened by requiring that this difficulty be by reason of the child's non-English language background (including children born outside the United States and individuals whose first language was other than English). Finally, the explicit focus on learning in classrooms strengthens the view that the base population should be restricted to in-school children.

Proposed Title VI Rules Issued by the Department on August 5, 1980

In contrast to the Title VII definitions, where the chief purpose being served was estimates of aggregate need, the rules proposed in 1980 (and later withdrawn) would have determined the eligibility of individual children to receive special language instruction, usually bilingual education (Federal Register, August 5, 1980). These rules also have a special significance for the present study, since our original charge was to estimate the number of public school children who would qualify for service under the definitions proposed. In what follows, we will describe how the proposed rules dealt with each of the three definitional issues.

The Base Population. The rules required districts to assess the English language proficiency and relative language proficiency of all children who qualified as having "a primary language other than English." This determination, in turn, was to be based on information supplied by all students or, for those students below the 9th grade, by their parents. Thus, there is some question as to whether the base population was the entire public-school universe, or the much-smaller number of students found to have a primary language other than English. Since the rules never went into effect, it is a matter of speculation what procedures schools would have followed in identifying potentially eligible children. We suspect, however, that many schools would have started with an intermediate

population--children with a non-English language background, defined as from homes where some use is made of a non-English language. Relative to this population, the schools could have implemented the proposed definition of "primary language other than English" by asking parents whether the child's first language was the non-English home language, or whether it is a language the student normally uses. A "yes" to either question qualified the child as "primary language other than English."

Sufficient Difficulty with English. Formally administered tests were to provide the basis for this determination, with oral proficiency tests permitted at all grade-levels and standard reading achievement tests authorized for children in grades 2 and above. In interpreting the results of these tests, school districts were permitted to select among three standards: the performance of other local students (excluding minorities), the performance of all students Statewide, or national performance standards. Subject to these choices, sufficient difficulty to initiate bilingual instruction was defined as performance below the 40th percentile, and sufficient difficulty to continue bilingual instruction beyond two years was defined as performance below the 30th percentile.

Dependence on a Non-English Language. The rules would have required formal assessments of each candidate-child's relative language proficiency by documented procedures of the district's own choosing. These assessments were expected to discriminate reliably between students superior in the non-English home language ("Primary-Language Superior") and students superior in English. Students not clearly falling in either of these categories (and also found to be limited-English-proficient) were to be

classified as "Comparably Limited." Under Alternative A of the proposed rules, only primary-language-superior students found to be limited in English were entitled to bilingual instruction, while under Alternative B, "Comparably Limited" children were also to be served.

Problems with National Estimates

Any estimation of the "eligible" population must deal with estimates of three groups:

(1) the base population or the most inclusive group of students who logically must be screened to determine the smaller group in need of services;

(2) that part of the base population which can be defined as having limited English proficiency; and

(3) that part of the base population that demonstrates dependence on another language.

In practice, the tests for limited English proficiency and for dependence on another language can be applied in either order.

The difficulty with developing national estimates is the lack of direct measures of the variables. The concern with the estimate of the base population is that it be sufficiently inclusive to capture those children who may require or be entitled to services, without being so broad that costly screening procedures are required for children with no potential eligibility whatsoever.

Another question about the size of the base population relates to the issue of including children not in school at all and children in private rather than in public schools. Children not in school are probably outside the province of Federal education policymakers and should therefore be excluded from the base population. Children in private schools are not covered by Title VI of the Civil Rights Act and accordingly are not in

the realm of OCR responsibility. They may, however, be entitled to bilingual education services under Title VII of ESEA.

Thus, the decision on the definition of the base population hinges on practical and policy issues as well as on measurement problems. As discussed above, Federal policy has generally required some reasonable link to a language other than English, such as birth in another country or the use of another language in the child's home environment.

Estimates of English language proficiency and of dependence on (dominance of) another language are more seriously hampered by measurement problems. Norm-referenced standardized tests (e.g., of reading comprehension) can be and have been used to measure English language proficiency, even though it is understood that the results may be confounded with non-language effects related to ability, to socioeconomic status, etc. Criterion-based measures are often advocated as a substitute for norm-referenced tests, but in the absence of national norms it is difficult to evaluate standards of proficiency. Tests of relative language proficiency, or of dependence on another language, are still in their infancy.

Given these difficulties, it is understandable that different studies have produced different national estimates of the various populations. This is almost always a consequence of different definitions and different measures of the critical variables. In our current study, therefore, we have attempted to reanalyze two major national data bases in a way that reconciles these differences, and to verify our estimates with two other data sources.

Our basic approach has been to reanalyze the CESS data base, to use the Sustaining Effects Study (SES) to incorporate a measure of reading comprehension missing in the CESS study, and to separately equate these data

bases to the school population through estimates derived from the Survey of Income and Education (SIE). These estimates are then compared with an independent population estimate from the 1978 OCR survey of schools and to estimates for selected States.

Throughout these analyses, we have been sensitive to the fact that the data sources differ in their purposes, their methodology, and their definitions of and procedures for identifying language minority children limited in English. Where possible, our analyses adjust for these differences. Specifically, we have attempted to adjust the data bases to estimate the population of in-school children who have sufficient dependence on a non-English language to interfere with their ability to benefit from classroom instruction given in English. It is our contention that this is the group of major concern for Federal education policy. We will also attempt to differentiate the public school population from the private school population. Where further data limitations do not allow us to directly estimate the number of private school children, we will adjust by their national proportion of total school enrollment, or approximately 10 percent.

III. ESTIMATES OF ELIGIBLE CHILDREN BASED ON THE CHILDREN'S ENGLISH AND SERVICES STUDY

Description of the Study

The 1974 amendments to the Bilingual Education Act directed the Commissioner of Education to submit a report to Congress on the condition of bilingual education, to include an assessment of the educational needs of children of limited-English-speaking ability, and estimates of their

numbers. The Children's English and Services Study was undertaken to provide these estimates. The work was performed by a consortium of contractors, under the direction of the National Institute of Education, with support from the National Center for Education Statistics and the U.S. Office of Education.

The CESS study proceeded in three steps—the development of special tests designed to measure English language proficiency (and provide a basis for classifying children as limited or not limited), the conduct of a household survey in which the newly developed tests were administered to a small national sample of language-minority children in the spring of 1978, and finally, the development of national estimates using earlier findings from the much larger Survey of Income and Education. While relying heavily on the CESS study report for our description of the development of the English proficiency measures (O'Malley, 1981), all of the estimates and quantitative assessments which we present here are based on our own analysis of the CESS survey file.

Development of the tests and establishment of cutoffs. Based on the recommendations of a panal of experts, the CESS study staff decided to create special 30-minute tests which could be administered by interviewers in the home. Different tests were developed for each single year of age, 5 through 14, with the choice of test-items being designed to reflect the increasing demands which English-language instruction makes of children at higher grade levels. Types of skills included oral and written comprehension, vocabulary, idiomatic expressions, and a variety of writing skills (punctuation, capitalization, phrase and word sequence, etc.). Final selection of test items and establishment of cutoff scores were based on the

performance of "criterion" groups furnished by a small number of schools judged to be using adequate methods of language assessment.

For each single year of age, these schools identified two groups of about 35 students each: a "fluent" group of native-English-speaking students making normal progress in school (defined in the instructions to these schools as within one-half a standard deviation of the mean), and a "limited" group made up of students representing a variety of non-English language backgrounds who were judged to be having significant difficulties with English instruction. Individual test items that failed to discriminate between these two groups were discarded, and cutoff scores on proficiency were selected with a view to including the maximum number of "fluent" students as proficient and the smallest possible number of "limited" students. Overall, for the 691 students in the criterion groups in all ten ages, these procedures produced agreement in 88 percent of the cases, with 95 percent of the "fluent" students scoring above the proficient cutoff on the tests, and 81 percent of the "limited" students scoring below those cutoffs.

The 1978 sample survey. Design of the CESS sample was complicated by two facts: only about one household in 35 could be expected to contain an eligible child (children ages 5-14 in homes where a non-English language was spoken), and for the basic sampling frame it was necessary to use 8-year-old data--the 1970 Census sample households which had indicated a non-English "mother tongue." As a result, a large number of households had to be screened in the field to obtain the final sample of 1,909 tested children, and the weights associated with these children are extremely variable, ranging from a low of 123 to a high of 65,000. The response rate in eligible households was over 90 percent for the questionnaire and

85 percent for the tests. Overall, 71 percent of the sample children tested out as limited-English-proficient (i.e., scored below the pre-established cutoffs), but since these children tended to have lower-than-average weights, the estimated proportion of "LEP" children in the 5-14 age universe was 63 percent, or about 2.4 million out of the 3.8 million language-minority children.

Uses made of the 1976 Survey of Income and Education. The Survey of Income and Education was a much larger survey and contained detailed information on non-English language use, identified in the same manner as that used by CESS. The identification questions used by both studies were as follows:

- What language do the people in the household usually speak here at home?
- What other language do the people in the household often speak at home?

A non-English language in response to either question qualified the child as "language-minority." Given the identities in definitions, CESS was able to use the SIE results to adjust the weights of its sample. Thus, estimates from the two studies are not entirely independent.

A second use made of the SIE data by CESS was in arriving at the widely cited figure of 3.6 million limited-English-proficient children of school age. Since the SIE covered children of all ages, it was possible to directly estimate the number of language-minority children ages 4-18. This figure was close to 3.8 million, and by straight-line extrapolation from the CESS estimates for children ages 5-14, the figure of 3.6 million limited English-proficient children of school age was obtained.

Evaluation and Reanalysis of the CESS Study

As noted in the introduction, we feel that the CESS study identifies excessive numbers of children in need of special language services. Our reexamination of the study identified two types of sources of potential overestimation:

(1) technical issues of methodology that may have artificially inflated the estimates of limited English proficient children; and,

(2) inclusion in the "needy" group of two categories of children who may not in fact require bilingual services--those who scored below the CESS English proficiency test but may not be dependent on another language, and those not enrolled in school.

We will first discuss the methodological concerns, and then turn to our reestimation of the language-limited public school population.

Technical Issues. The major concern with the technical quality of the CESS estimates relates to the adequacy of the cutoff scores on the CESS test of English proficiency. The value of the CESS data is critically dependent on the merits of the CESS definition of limited English proficiency. In the absence of the test data, there would be no reason to use CESS since the Survey of Income and Education offers more reliable and complete estimates of the base population (language-minority children) and their composition by categories of non-English language dependence. Unfortunately, there are a number of reasons to question the adequacy of the test data and the derived proficiency cutoff scores.*

* We have just learned of internal memoranda at the Bureau of the Census which also question the adequacy of the procedures used in establishing cutoff scores on the CESS tests, based on reviews conducted in the Bureau's Center for Human Factors Research and Statistical Methods Division.

In the first place, there is no independent (objective, nationally-normed) estimate of the actual school performance of the students in the "fluent" criterion groups. Such measures would have allowed us to judge how well the study's instructions (to identify students making normal progress) were carried out, and whether the schools furnishing these criterion groups were nationally representative in terms of standards of student progress. This is critical, for what "independent" estimates we do have suggest that the cutoff scores are too high, with the result that excessive numbers of children were identified as limited English proficient.

These "independent" estimates come from two sources: a follow-up study of the CZSS sample which obtained teacher estimates of language proficiency and reported reading achievement, and a comparison of CZSS test results with reading proficiency scores from another study (discussed in the following section).

The CZSS staff attempted to collect school follow-up data on all students who were enrolled, but due to lack of school district cooperation, they were able to collect data on only about half of this group.* While this means that children represented in the follow-up data are not necessarily representative, there is evidence of serious discrepancies between performance on the CZSS proficiency test and the child's reported achievement and/or teacher-rated English proficiency. For example, 65 percent of the children scoring as limited-English-proficient on the CZSS tests

---

* For a description of these coverage problems and the basic tabulations on which our analysis of the follow up results relies, see L. Miranda and Associates, 1979.

were judged by their teachers to have "adequate" or better English proficiency. In addition, of children reported in the school follow-up to be reading at least half a year above grade level, 36 percent scored below the proficiency cutoffs on the CESS tests. When combined with the fact that only 5 percent of the students in the original "fluent" group scored below the test proficiency cutoffs and that all of them should have been reading at grade level, these results lead us to conclude that the "fluent" criterion groups were from exceptionally good schools (or schools with exceptionally high standards), and/or that the selection of "fluent" students may have had an upward bias.

All of this suggests that the CESS cutoffs for proficiency may have been set too high, which would tend to inflate the estimates of numbers of limited-English-proficient students.

A further consequence of the lack of independent evidence for proficiency of the criterion groups and of the small number of "fluent" children (about 35) at each age is a potential lack of comparability of proficiency standards across ages. In fact, an examination of age-specific proportions of children found to be limited-English-proficient bears out this concern; for example, only 56 percent of the 11-year-olds (in the sample) are found to be limited-English-proficient, compared to 83 percent of the 10-year-olds and 73 percent of the 12-year olds. This unevenness carries over to the universe estimates, where it is exacerbated by disproportionate weights—different in some cases by a factor of 20 or 30—applied to individual test results.

Reanalysis of CESS Data To Exclude Nonrelevant Populations

As noted earlier, the CESS study's own estimate of the number of limited-English-proficient children, ages 5-14, is 2.4 million. As we have just discussed, this estimate may be artificially inflated, based on excessively high cutoff scores on the CESS English language proficiency test, and based on the inclusion of nonrelevant populations. In the next section we discuss our use of normed tests to infer appropriate cutoffs for the eligible population. In this section, however, we take advantage of information present within the CESS file that allows us to disaggregate the 2.4 million children tested as limited-English-proficient by categories of relative dependence on a non-English language. It is our contention that a child who is not dependent on a language other than English, regardless of the child's limitations in English, should not require and would not benefit from services provided in the non-English language.

Table A presents a series of estimates which reduces the 2.4 million children tested as limited-English-proficient into successively smaller subsets defined at each step by progressively stronger evidence of dependence on a non-English language.

As the table demonstrates, a large number of these children should not be classified as having sufficient dependence on the non-English language to warrant bilingual instruction. Sixteen percent of the total group speaks English exclusively and more than half (56 percent) usually speak English. It is likely that the 1.1 million estimate on line 4 (Column a) is the one most relevant to our definition of limited-English-proficient children with an other-language dependence strong enough to warrant bilingual instruction.

We can further refine this estimate, which includes all children regardless of their school enrollment (in school or not, public or private),

Table A. Estimates of Limited-English-Proficient Children by Increasingly Restrictive Definitions of Dependence on a Non-English Language: Children's English & Services Study, 1978.

Progressively Restrictive Categories of Dependence on a Non-English Language	Universe Estimate Ages 5-14 in 000s (a)	Proportion of Total (b)
1. Children from homes where English is not the only language spoken.....	2,409	1.00
2. and the child does not speak English exclusively.....	2,022	.84
3. and the usual home language is not English.....	1,590*	.66
4. and the child's usual language is not English.....	1,072*	.44
5. and the child does not speak English or does not speak it "well".....	283*	.12
6. and the child is reported to not speak English or to speak it less than "well".....	147	.06

*These categories include 136,000 children with missing information. In other words, all subtractions are based on affirmative reports.

but only those aged 5-14, by limiting it to the public school universe and expanding it to include grades K-12. Of the 2.4 million children in the 5-14 age group estimated by CESS to be limited-English-proficient, 85 percent are enrolled in public school, 10 percent in private school, and 5 percent are not attending school (most of them age 5). Using the SIE data and the straight-line extrapolation methods mentioned earlier, we

estimate that the 3.6 million limited proficient children in the 4-18 age group would include about 700,000 children not attending school, and another 300,000 in private schools, leaving about 2.6 million (or 72 percent of the total) in the public school universe, and 2.9 million in public and private schools.

Summary. Thus, from our further analysis of the CESS data, we can estimate the size of the needy group of greatest relevance for Federal policy. Table B summarizes our successive approximations to greater dependence on a non-English language (down the rows) and to the public school K-12 universe (across the columns). In this way, the figure of 3.6 million language-limited children used by CESS is disaggregated to result in 1.2 million children who are dependant upon a language other than English and who are in the K-12 public school universe.

TABLE B. Estimated Numbers (in millions) of Language-Limited Children by School Enrollment and Dependence on a Non-English Language: U.S., 1978

Progressively restrictive categories of dependence on a non-English language	Alternative Definitions of the Base Population		
	All Children Ages 4-18	All Children Enrolled in School K-12	All Children in public school K-12
1. Children from homes where English is not the only language spoken.....	3.6	2.9	2.6
2. And the usual home language is not English.....	2.4	2.2	1.8
3. And the child's usual language is not English...	1.6	1.3	1.2

SOURCE: These estimates are extrapolations from CESS, using estimates of the base populations from the Survey of Income and Education.

IV. ESTIMATES OF ELIGIBLE CHILDREN BASED ON THE SUSTAINING EFFECTS STUDY

Description of the Study

The Sustaining Effects Study represents the largest evaluation effort ever undertaken in connection with a Federal education program. The purpose of this study was to evaluate the effectiveness of compensatory education services provided by local schools under Title I of the Elementary and Secondary Education Act (ESEA). Most of the work was carried out over a 4-year period by System Development Corporation under contract with the Evaluation unit of the U.S. Office of Education, commencing in 1975. In addition to the Sustaining Effects Study Participant File, on which our estimates rely, major products include three volumes of documentation (Hoepfner et al., 1977; Hemenway et al., 1978; System Development Corporation, 1979) and numerous analytic reports by the System Development Corporation or Decima Research, along with a growing number of studies by independent investigators. In what follows we will briefly describe the Participant sample survey and the measures of reading achievement employed in this study.

The Participant Sample Survey. The Sustaining Effects Study utilized a multi-stage procedure in arriving at a sample of 243 public schools offering instruction in grades 1-6. In the first stage, the 62,000 schools in this universe were assigned to 90 strata, defined by three categories of enrollment size, three of poverty status, and ten geographic areas. Schools in each stratum were weighted by their total enrollments in grades 1 through 6, and sampled at rates designed to yield equal numbers of children. This procedure, coupled with the choice of cutting points on proportions of children in poverty, resulted in a significant overrepresentation of poor children in the initial sample of 5,000 schools.

Questionnaires sent to the principals of each of these schools provided up-to-date information on enrollments, grade-span, and special programs offered. Using this information plus information supplied by State coordinators of the Title I program, three "purposive" samples were selected which, taken together, comprise the 243-school "Participant" sample.

Two things need to be pointed out about this selection process: schools (and students) not participating in the Title I program were adequately represented, but 28 (out of the original 5,000) schools were excluded from consideration on the basis of reports that most of their students were in special language programs (bilingual or English-as-a-second-language) and would have difficulty with the study's English-language instruments.

On its face, this second decision introduced a bias in the procedures which produced the Participant sample, since one or two of these 28 schools would otherwise have been selected. The most serious effect of this bias, for the uses we make of the Participant sample data, would be to underrepresent children who are heavily dependent on a non-English language, and thereby to underestimate the relative disadvantagement of language-minority children. This possibility cannot be dismissed, but as we shall see, comparisons with the CESS and the Survey of Income and Education are reassuring in two respects: the Participant sample yields larger estimates overall of language-minority children enrolled in public school grades 1 through 6, and includes higher proportions of children from homes where English is not regularly spoken.

Field work commenced with the 1976-1977 school year. For purposes of norming, reading and math tests were administered to all 81,000 elementary students in the 243 schools. Our focus in this study, however, is on the

15,579 children (an approximate one-fifth sample) for whom household data, including home language use, are available. The home interviews were conducted early in 1977. These yielded information on languages "regularly spoken" at home for all but 136 of the 15,579 children and served to identify 1,8[illegible] children with a non-English home language in the sample. Language use was identified by a series of language-specific questions, starting with "Is English regularly spoken in your home?" and going on to ask the same question about Spanish, Portugese, Chinese, Japanese, Italian, and "any other language."

In homes where a non-English language was regularly spoken, parents were also asked what use they made of English and the non-English home language in helping the child with school work. Used in conjunction with the language-specific questions, this "homework" question permits us to distinguish three categories of differential dependence on a non-English language in the home situation of language-minority children. These categories, which can be roughly equated with categories of parent and child language use from the SIE (as discussed below), are as follows:

1. Children in homes where English is regularly spoken and homework help is given exclusively in English.
2. A middle group of children from homes where English is regularly spoken who receive homework help in both English and the home language.
3. Children in homes where English is not regularly spoken or help is given only in the non-English home language.

The Measure of Reading Achievement. Since reading and math skills constituted the principal evaluative focus of the study, a great deal of care was taken in the selection, administration, and scoring of these instruments. Reading and math subscales of six different batteries of the McGraw-Hill Comprehensive Tests of Basic Skills were eventually selected,

but these were re-normed and percentile scores derived. Total testing time ranged from 67 to 107 minutes (depending on the level) with reading accounting for slightly more than half of the 75 to 138 multiple-choice items.

Reading Achievement of Language-Minority Children by Language Group and Home Language Situation

Table C presents universe estimates from the Sustaining Effects Participant file for three categories of language-minority children (plus a residual category). Also presented are estimates of the numbers and proportions scoring below the 40th and 25th percentiles in reading. These percentiles are based on norms for all children in public school grades 1 through 6 in the 243 nationally representative schools. These two cutoffs were selected to represent, respectively, relatively liberal and relatively stringent definitions of limited-English-proficiency.* Within the limits of the questions asked and the sample size, Table C represents about as much as the Sustaining Effects Study Participant file can tell us bout the performance of language-minority children relative to these two cutoffs on reading achievement.

Using these cutoffs as alternative definitions of limited-English-proficiency, we note that proportions of "limited" children under each cutoff increase quite regularly with increasing dependence on a

---

* Prior to the issuance of the proposed Title VI rules, serious consideration was given to identifying these two cutoffs as alternatives for public comment. Even after a decision was reached in favor of the 40th percentile cutoff, it was still necessary to estimate the smaller number of children who would qualify for service under the lower cutoff, since an explicit analysis of costs associated with "alternatives considered and rejected in the rulemaking process" was required as a part of the Department's Impact Analysis under President Carter's Executive Order 12044.

TABLE C. Population Estimates of Reading Achievement of Language-Minority Children in Public School Grades 1-6 by Language Group and Home Situation: Sustaining Effects Study, Spring 1977

Language Group and Home Language Situation	Size of Total Group (000s)	%ile Cutoffs on Reading Achievement: # Below 40th (000s)	# Below 25th (000s)	% Below 40th	% Below 25th
Spanish Home Language	1,418	940	684	.66	.48
1. English regularly spoken and all homework help in English.....	834	490	322	.59	.39
2. Homework help in English and home language.....	47	33	26	.70	.55
3. English not regularly spoken or all help given in home language.....	360	303	251	.84	.70
4. No help with homework or missing information*..	(177)	(114)	(85)	(.64)	(.48)
Other Non-English Home Language	851	290	152	.34	.18
5. English regularly spoken and all homework help in English.....	691	229	110	.33	.16
6. Homework help in English and home language.....	15	5	5	.32	.31
7. English not regularly spoken or all help given in home language.....	39	20	13	.51	.34
8. No help with homework or missing information*..	(106)	(36)	(24)	(.34)	(.23)
Total, Spanish & Other	2,269	1,230	836	.54	.37
9. English regularly spoken and all homework help in English.....	1,525	719	432	.47	.28
10. Homework help in English and home language.....	63	38	31	.60	.49
11. English not regularly spoken or all help given in home language.....	399	323	264	.81	.66
12. No help with homework or missing information*..	(283)	(150)	(109)	(.53)	(.39)

* Residual categories not used in our later analyses.

non-English language in the child's home. For example, language-minority children in homes representing the most dependence on a non-English language are more than twice as likely to score below the 25th percentile as those with the least dependence (Line 11 versus line 9 or 66 percent compared to 28 percent). The contrast between these two groups, however, is partly a consequence of their language-group composition. About 90 percent of the children in the most dependent category are Spanish, while substantial numbers of non-Spanish children are in the least dependent category.*

Development of Estimates of Eligible Children in the Public School Universe K-12 Using the Sustaining Effects Study and the Survey of Income and Education

The table just presented represents our starting point. As with CESS, the principal value of the Sustaining Effects Study is the test data—nationally normed measures of the ability of language-minority children to read English at their grade-level. We develop our estimates by applying proportions of children limited in English under each of the two percentile cutoffs to figures from the Survey of Income and Education (SIE) for the entire public school universe, K-12. This procedure involves three critical assumptions—first, that the Sustaining Effects Study sample is adequately representative of language-minority children in public school grades 1-6; second, that the Sustaining Effects Study and SIE categories of dependence on a non-English language can be meaningfully related; and finally, that it is reasonable to extrapolate from evidence on reading performance in the elementary grades to all grade levels. In what follows, each of these

---

* It can also be seen that, in general, smaller proportions of the non-Spanish-group than of the Spanish-language-group are reading-limited.

assumptions will be examined in turn and our results displayed for each step of the estimation procedure.

Is the Sustaining Effects Study Sample Representative of Language-Minority Children in Public School Grades 1-6? Relative to CESS and SIE estimates of children from homes where a non-English language is used, the Sustaining Effects Study estimate of 2,269,000 is about 13 percent higher. As previously noted, the difference in the questions used to identify non-English language use in the home may have contributed to this, but the Sustaining Effects Study estimate is higher primarily because an inflated figure of 21 million was used in weighting the sample. As of the spring of 1977 (the SES reference data), there were about 19.5 million children enrolled in grades 1-6 in public schools. Correcting for this difference reduces the Sustaining Effects Study estimate for language-minority children to 2,107,000, or about 5 percent higher than the SIE/CESS estimates for the same universe.

The most critical question for our final estimates is whether the highest-need children (i.e., in homes where English is not regularly spoken) are underrepresented in the Sustaining Effects Study sample. As noted above, a potential bias was introduced into this 243-school sample by the elimination of 28 schools with high proportions of English-limited students from the first-stage sample of 5,000 schools. Clearly, if children with the highest need are underrepresented, then our estimates of proportions of reading-limited students may be too low. Using estimates from CESS as our standard of comparison, we find in Table D that the overall picture is reassuring, although there are some problems. For the group as a whole, the Sustaining Effects Study yields higher numbers and proportions of children

TABLE D. Comparison of Numbers and Proportions of High-Need Language-Minority Children Enrolled in Public School Grades 1-6 in the Weighted Samples of the Sustaining Effects Study and the Children's English and Services Study

Source and Definition of High-Need	Total	Spanish	All Other
1. SES: Number of children in homes where English is not regularly spoken	255,000*	241,000*	14,000*
2. SES: Line 1 as a proportion of all language-minority children	.121	.183	.018
3. CESS: Number of children in homes where English is neither the usual nor a second ("often spoken") language	154,000	103,000	51,000
4. CESS: Line 3 as a proportion of all language-minority children	.073	.080	.071

* These represent estimates for a 19.5 million universe (all children enrolled in public school grades 1-6 in the spring of 1977). This means that weights for a 21.0 million universe have been reduced by about 7 percent.

in homes that appear to be wholly dependent on a non-English language. When the totals are broken down by language group, however, the results are mixed. While non-Spanish language-minority children are distinctly underrepresented (by a ratio of one to four) in the SES data, the highest-need Spanish children appear to be substantially overrepresented, using the CESS data as our criterion.

This evidence persuades us that although high-need children are adequately represented in the totals, it is not feasible to develop separate estimates of eligible children by language-group with these data.

Accordingly, we turn next to the task of relating the SES and SIE categories of non-English language dependence for both groups combined.

Is There a Reasonable Relationship Between SES and CESS/SIE Categories of Non-English Language Dependence? As noted above, we would like to be able to relate the three SES categories of increasing dependence on a non-English language to the three SIE categories of parent-child usual language. If this can be done, the rates of limited-English proficiency as defined by performance of the SES group below the 25th or 40th percentile can be applied to the numbers of children grades 1-6 in the "parallel" SIE language-dependence categories. We can then inflate these figures to represent language-limited children as measured by reading scores in the K-12 public school universe.

The three operational language-dependence categories for the two data bases are shown in Table E, along with the proportions of children (grades 1-6) in each universe who fall within each language usage category.

As Table E indicates, there are appreciable differences in the relative proportions associated with the categories.* However, since our primary purpose in using the categories is to apply the rates of limited-English-proficiency developed under the SES categories to the numbers of children in the SIE categories, the match need not be exact. We must only be certain that our approach applies reasonable rates of limited-English-proficiency to the SIE categories. Referring back to Table C, we note that the rates derived for the SES language use groups are well-ordered;

---

* Note that the proportions shown for the SES categories are based on only those cases for which we have complete information on the language(s) used for homework help. That is, the "residual" group is not included. To allot the cases with missing data to one or another category could bias our results.

that is, rates of limited-English-proficiency increase regularly with increasing dependence on a non-English language. Thus, we will apply the rates (in Table C) for each SES category directly to the corresponding SIE categories. As our major concern is with the third category of children (those most dependent on a non-English language) we are reassured that the SES and SIE proportions correspond most closely there. The fact that we have a very high observed rate of 81 percent of children falling below the 40th percentile gives us confidence that we will not be significantly underestimating the number of eligible children.

TABLE E: Comparison of Three Language Use Categories for the Sustaining Effects Study and the Survey of Income and Education, Grades 1-6

SES Language Use Category	Proportion of Children in Each Category	SIE Language Use Category	Proportion of Children in Each Category
1. English regularly spoken in the home, and all homework help given in English	.77	Both parent and student usually speak English	.55
2. English regularly spoken in the home, homework help in both English and the home language	.03	Only parent usually speaks the non-English language; student's usual language is English	.21
3. English not regularly spoken in the home or all homework help in non-English language	.20	Both parent and child usually speak a non-English language	.24

Can the Reading-Limited Rates Developed on Grades 1-6 Be Extrapolated to the Public School Universe, K-12? Our final estimates attribute to children in kindergarten and grades 7-12 the same limited rates as calculated for children in grades 1-6. Intuitively, this might appear to entail

the assumption that children make no gains in English proficiency as they progress through the grades, but this is not strictly the case for two reasons. First, our reading measures of English limitations are wholly norm-based, and this means that they will only reflect gains achieved relative to the rest of the norming group, as opposed to absolute gains.

The second reason for believing that our procedure is consistent with real gains in English proficiency is that it takes into account shifts in distribution of children across language dependency categories with age. In Table F we note that the proportion of language-minority children who usually speak a non-English language decline with advancing grade level. Thus, while we postulate the same proportions of reading-limited children within the three categories of language dependence, the average proportions are lower for children in the higher grades.

Final Estimates of Children. Having evaluated and found support for our three assumptions, we can now apply the reading-limited SES rates to the SIE public school universe, grades K-12. The SIE universe estimates by categories of progressive dependence on a non-English language are presented in column a of Table G. Applying the reading-limited SES rates from Table C (lines 9-11) to these figures, we arrive at public-school universe estimates, grades K-12, of reading-limited children—those below the 40th percentile (column b of Table G) and those below the 25th percentile (column c)—in each of the three categories.

In columns c and d of Table H, we summarize and aggregate these figures across categories to provide universe estimates of potentially eligible children. Line 3 represents categories 2 and 3 of language dependence—those children whose usual language is English (but whose parents' usual language is not), as well as the children whose usual language is not

TABLE F. Composition of Language-Minority Children in Public School by Grade-Level, Language Group, and Parent-Student Usual Language: U.S., 1976 (SIE)

Language Group and Parent-Student Usual Language	Percent of Children in Each Category By Grade Level		
	Kindergarten	Grades 1-6	Grades 7-12
Spanish			
Both usually speak the non-English language.....	40	30	23
Only parents usually speak the non-English language.....	15	23	26
Both usually speak English.....	45	47	51
Spanish Total.....	100	100	100
Other Non-English Languages			
Both usually speak the non-English language.....	20	13	11
Only parents usually speak the non-English language.....	17	17	15
Both usually speak English.....	63	70	73
Other Total.....	100	100	100

TABLE G. Estimates of Numbers of "Limited" Language-Minority Children (000s) Enrolled in Public School, K-12, Under Three Language-Use Categories: U.S., 1976

Parent-Student Usual Language	Size of Total Group	Numbers of "Limited" Children Based on Reading Achievement Below 40th	Below 25th
	(a)	(b)	(c)
Total Language-Minority	4,167	2,416	1,679
1. Both usually speak English.....	2,378	1,118	666
2. Only parent usually speaks the non-English language.....	882	529	432
3. Both usually speak the non-English language.....	906	734	598

SOURCE: Size of group (a) is estimated directly from the 1976 Survey of Income and Education. "Limited" proportions under the 40th and 25th percentile cutoffs on reading are based on Sustaining Effects Study estimates for the categories of dependence on a non-English language (see Table E).

TABLE H. Estimated Numbers (in millions) of Limited Children Under Three Alternative Definitions by Enrollment in Public School and Dependence on a Non-English Language: U.S., 1976

	Definition of "Limited" and Estimation Method			
	CZSS: Straight-Line Extrapolation	CZSS: Component Method**	Sustaining Effects Study Cutoffs on Reading Achievement Using the Component Method:** Below 40th	Below 25th
	(a)	(b)	(c)	(d)
1. All Children, ages 4 to 18.....	3.6	—	—	—
2. Enrolled in public school, K-12.....	2.6*	2.5	2.4	1.7
3. Usual parent (home) language is not English.....	1.8*	1.5	1.3	1.0
4. Child's usual language is not English..	1.2*	.8	.7	.6
5. Line 4 plus 10 percent addition for private schools.....	1.3	.9	.8	.7

* These estimates represent test results for all children ages 5-14 inflated by the ratio of language-minority students in public school (4,167,000 from the Survey of Income and Education) to the CZSS universe (3,812,000) or 1.093.

** The component method applies estimated proportions of limited children in the three categories of language use of public school children grades 1 through 6 to SIE estimates of the same three categories for the entire public school universe. The SES proportions are given in Table C; the CZSS proportions are, respectively, .46 (both usually speak English), .76 (only the parent usually speaks the non-English language), and .86 (both usually speak a non-English language).

English. As noted, we believe this category is too inclusive to represent the eligible population. Line 4 corresponds to those children whose usual language is not English, and who are, thus, most in need of bilingual education. (Line 5 adds 10 percent for the private school population, who may be entitled to services under Title VII of ESEA). For comparison purposes, we present two other estimates. Those in column a are developed by extrapolation of the CESS estimates of children aged 5-14 to the public school universe, grades K-12. Those in column b are derived by applying CESS-observed proportions of limited children in each of the three language categories for grades 1-6 to the entire public school universe. The CESS proportions are, respectively, .46 (both usually speak English), .76 (only parent usually speaks the non-English language), and .86 (both usually speak a non-English language).

Summary

Relative to norm-based definitions of children eligible for special instruction under Title VI of the Civil Rights Act, the Sustaining Effects Study, despite some problems, offers an important alternative data source for the development of national estimates. Its primary advantage is that it provides rigorously developed and normed measures of reading achievement, along with a means of distinguishing differences in the extent of reliance on a non-English language among language-minority homes. Using these normed measures and a definition of need that corresponds to the greatest dependence of the child on a non-English language, we would thus estimate that between 600,000 and 700,000 children (depending on the choice of the 25th or 40th percentile) may be in the eligible public school population. Including the private school universe could raise these estimates to 700,000-800,000 eligible children.

As regards the SES study's defects, we have attempted to evaluate their potential impact and wherever possible to adjust for them. In this connection, our reliance on the much larger Survey of Income and Education serves to set reassuring bounds on the contribution of the Sustaining Effects Study data to our estimates for language-minority children in the public school universe.

V. COMPARISON OF ESTIMATES FROM OTHER SOURCES

In this section we present evidence from two other sources—from the 1978 OCR Survey of Schools and from selected States—that focus on the question of numbers of language-limited children. Again, we must contend with sources that use different definitions and different methodologies. This is particularly true of data collected by States on their own populations, where the procedures vary widely both across and within States. Nevertheless, for those States where we have relatively comparable data from a number of sources, it is clear that the discrepancies among our adjusted estimates, the OCR data and the States' own data, are far smaller than the discrepancy between any of these and the disaggregated CESS estimates.

We begin this section with a discussion of the OCR national estimates of children with a primary language other than English. This is followed by a brief discussion of the estimation procedures and estimated numbers of language-limited students provided by SEAs in three States—California, New York, Texas—chosen because these are the three states for which the CESS sample sizes were sufficient to give separate estimates. Finally, for these three States we present side-by-side estimates from our analyses of data from the SIE, CESS, OCR, and from the States themselves.

Estimates of Eligible Children Based on the 1978 OCR Survey of Schools

The Office for Civil Rights (OCR) of the Department of Education has conducted an annual or biennial Elementary and Secondary School Civil Rights Survey since the 1968-69 school year. In the even-numbered years, including 1978, the surveys sampled approximately 50 percent of public school districts with enrollments larger than 300 within the 50 States and the District of Columbia and censused all schools within the sampled districts. Two forms were used: the Form 101, which is a school district summary, and the Form 102, which is an individual school report. Data reported here are from the Form 102, for the 1978-79 school year. The analyses (Milne and Goubert, 1981) were conducted by AUI Policy Research under contract to the Office of Planning, Budget, and Evaluation.

The data requested in the survey reflect OCR responsibilities for and concerns about school district compliance with Title VI of the Civil Rights Act and the groups protected under that law. The OCR survey question of interest for this study asked school personnel to estimate the number of students within given racial-ethnic groups whose usual language is not English. Specifically, within the designated racial/ethnic groups--American Indian or Alaskan Native, Asian or Pacific Islander, Hispanic, Black (not of Hispanic origin), and White (not of Hispanic origin)--school personnel were asked to estimate numbers of "pupils in membership who speak or use a language other than English more often than English."

The survey is thus a school-based survey, and its estimates (provided by school personnel) are estimates of the child's relative language proficiency. Since no estimates of English language proficiency are called for in the OCR questionnaire, some of the children counted in the OCR figures could be

English-proficient, and the OCR figures could overestimate the language-limited population. Nor do we know what types of evidence--school records, children's performance, etc.,--were used by school personnel to make the determination of the usual language. If they tended to attribute a non-English language to children of given ethnic backgrounds who were not performing well in school, it is also possible that the figures are overestimates. Finally, it is possible that school personnel perceive the OCR survey as a compliance tool, which could result in underreporting of numbers of English-limited children. Nevertheless, on their face, the OCR reports represent estimates of public school children who are highly dependent on a non-English language.

Based on our analysis of the OCR survey file, the numbers of children with a usual language other than English in the public school universe are 934,000.* This is remarkably close to our estimates in Table H of numbers of children whose usual language is not English and who are limited-English proficient from the three other sources--CESS straight line extrapolation (1.2 million), CESS component method (.8 million), and SES 40th percentile (.7 million).

Because the OCR survey is conducted to collect data that could be used to monitor compliance, it has been suggested that school personnel may underestimate the number of language limited children. However, a comparison of the OCR survey with the logically equivalent SIE study indicates that

---

* The figure published by OCR is 953,000 (Office for Civil Rights, 1979). It is not clear whether the discrepancy reflects an adjustment for Chicago (where usable survey data could not be collected), or non-use by OCR of the published State adjustment factors (some of which are less than 1).

these school-based estimates tend to be higher than estimates obtained in household surveys. Thus, the OCR school survey estimates 934,000 (or 953,000) such students nationally; the SIE study (asking household respondents, "What language does...usually speak" and "What language does...usually speak with... best friends") found 906,200 such students in grades K-12 in public schools, or about 3 to 5 percent fewer than the OCR figures.

We find the similarity of the OCR estimates to our other estimates highly encouraging because the OCR data base is the largest sample available, sampling 5,654 school districts (more than half of the districts in the United States with enrollments over 300), all 54,082 schools within those districts, and 30,000,000 children (approximately 72 percent of the public school enrollment in school year 1978-1979). Moreover, the sample may be our most valid national estimate in that it is an aggregate of experience and judgment at the local level—the level to which we must ultimately look for practical remedies.

State Education Agency Estimates

It has been suggested that States which conduct their own surveys of language-minority populations might have estimates which could be used to refine the more global State-level estimates derived from national samples. In an effort to ascertain State estimates and their procedures for arriving at these estimates, we conducted a telephone survey of twelve States (known from other data to have large language-minority populations).* Representatives in each State's bilingual education office were first asked for their most accurate estimates of the student minority language population and the

* The States surveyed were Arizona, California, Connecticut, Florida, Illinois, Louisiana, Massachusetts, New Jersey, New Mexico, New York, Texas, and Washington.

criteria which define this population. Second, they were asked to describe State requirements concerning LEA identification and assessment procedures.

The States surveyed differ significantly in both the definition of language minority population and in the extent of LEA discretion permitted in formulating identification and assessment methods. States with bilingual education programs tend to exhibit a more consistent approach to defining and counting language minority population students, but again there are exceptions. Some states have altered their education funding mechanisms from categorical to block grants, which has loosened LEA reporting requirements. Other States, which have passed bilingual education legislation but have no specified LEA reporting procedures, are moving toward greater uniformity. Overall, it appears that little interstate consistency exists.

Because the estimates are so varied and the definitions so different across States, we present here only the figures for the three largest States—California, Texas and New York. We first offer a short summary of the numbers of limited-English-proficent public school students and the procedures used by the SEAs in arriving at these estimates. We then compare four sets of estimates for the three States.

Selected State Counts and Identification and Assessment Regulations

CALIFORNIA

Spring 1980 figures for limited English speaking and non-English speaking students for grades K-12 are 188,879 and 136,869, respectively, or a total of 325,748. The State requires that each student be administered a State developed home language survey. If his or her home language or primary language is other than English, the student must be given an oral proficiency

exam. If the student qualifies as limited- or non-English-speaking on the oral exam, he must be tested further for reading proficiency. Schools may select any State approved testing instrument. For 1981, the Bilingual Syntax 1 and 2 and Language Assessment Scales 1 and 2 are the permitted evaluation instruments.

NEW YORK

The New York Office of Bilingual Education estimates that approximately 132,000 limited English proficient students are enrolled in the public school system.* New York has recently released guidelines to school districts specifying a recommended level of identification procedures, but it is unclear whether or not State law requires districts to follow these guidelines. School districts are required to report their enrollment by ethnic group each year to the SEA, and a comprehensive Statewide system exists for this annual ethnicity count. The State bilingual eduction program was formerly funded by discretionary grants, but beginning this year (1981) it is funded according to a formula based on the number of LEPs. Participation by LEAs is voluntary.

TEXAS

227,120 students in 1979-1980 in grades K-12 were identified as limited English proficient. 133,556 of these students were served in full bilingual education programs and another 50,000 were placed in ESL programs. The State requires LEAs to identify eligible students according to the following procedures. First, all students must be administered a Home Language Survey. If either the primary home language or the student's primary language is other than English, a test for English proficiency must be given. The LEA

* A recent call to that office to verify these figures met with a refusal to respond to other than a written request for information.

may choose one or more of five SEA approved assessment instruments. Students who score below grade level are then evaluated by an LEA appointed language proficiency assessment committee. They, in turn, prescribe either ESL, bilingual education, or regular program placement and review the student's progress every year.

Beginning this year (1981), all Hispanics must be administered a language dominance instrument whose results are reviewed by the language proficiency assessment committee.

Comparisons of Various Estimates for Three States

Finally, Table I presents estimates from four data sources for the three States. The State counts and CESS estimates are for limited-English-proficient children (based on the definitions used by the SEAs and by CESS, respectively), while the OCR and SIE estimates are for children who usually use a language other than English (based on the definitions used by OCR and on our reanalysis of the SIE figures, respectively).

The estimates in Table I are, thus, for populations variously defined as being eligible for bilingual services. With some qualifications, noted below, it can be stated that the estimates are all easily within the same range, with the exception of the CESS estimates; these are obvious outliers, being 200 to 300 percent of the other estimates.

Because the SES data base is not large enough to be disaggregated by categories of language-dependence and by State, we have derived the estimate on line 2 simply by multiplying the SIE estimates of numbers of these language-dependent children by .81, or the proportion of SES children with greatest dependence on a non-English language who are below the 40th percentile. While this is clearly an over-simplification, it provides

TABLE I. Comparison of Selected Estimates of Language-Limited Children (000s) in Public Schools in Three States

Source	State		
	California	New York	Texas
SES/SIE			
1. Parent's and child's usual language not English*	165	161	276
2. Limited-English proficient** (.81 times line 1)	134	130	224
SEA Counts			
3. "Limited English proficient"	326	132	237
4. "Non-English speaking"	137***	—	—
OCR			
5. Child's usual language not English	257	117	257
CCSS			
6. Limited English proficient (K-12)	649	512	79

* State share of SIE estimates of children from homes where the parent's and the child's usual language is not English.

** Estimates derived by multiplying our SIE estimates (line 1) by the SES proportion of children dependent on a non-English language below 40th percentile (.81).

*** A subset ("non-English-speaking") of the limited-English-proficient figure in line 3.

estimates which are remarkably similar to those provided by the States themselves (line 3). The major discrepancy is within the State of California where the total "limited" population (limited-English-speaking plus non-English-speaking) as estimated by the State is considerably higher than the SES/SIE estimates and somewhat higher than the OCR estimate. In fact, the subset of non-English-speaking students (line 4) in California appears to be closer to our SES/SIE estimate of eligible children. This may reflect the fact that California tests all language-minority children for oral English proficiency and defines as "limited" all who fall below specified cutoffs on the approved tests. The lowest proportion of these children are then defined as non-English-speaking, even though they may score higher than zero on the test. Thus, it is possible that the California estimate of the total "limited" population is overly generous as an estimate of children "dependent" on a non-English language.

In fact, a study by Dulay and Burt (1980) of Hispanic students in seven California school districts demonstrates that for many children classified as limited-English-speaking, English may nevertheless be their strongest language. That is, they are comparably or more limited in Spanish, and they are not dependent on the non-English language.*

Regardless of the interpretation one applies to the California figures, their counts are still not nearly as high as the CESS estimates. It is interesting that the New York and Texas counts are 82-83 percent of the SIE estimates (line 1)--nearly identical with the 81 percent of the SIE

---

* They also note that the proportions who can be called "English superior" could rise dramatically if tests of reading and writing proficiency were added to the tests of oral proficiency, for "preliminary data...indicate that most Hispanic students reading below grade level in English read substantially less well in Spanish" (Dulay and Burt, 1980, p. 187).

group we estimate as limited by applying the SES 40th percentile cutoff (line 2).

In general, we are reassured about the level of our reestimates by the concordance of these estimates with all other sources except CESS. It is interesting that the SEA estimates are not closer to the CESS estimates, as both profess to relate to children who are limited-English proficient, rather than the (presumably) more restrictive category represented by OCR and OPBE/SIE definitions of children "dependent" on a language other than English. It may be the case that SEA/LEA personnel are actually closer to the school-related needs of the children involved, and define language limitation accordingly. This would also explain the general correspondence between SEA counts and OCR estimates, which are also based on information provided by school-level personnel.

VI. CONCLUSIONS

We believe that the number of children whose opportunities to benefit from education are curtailed by dependence on a non-English language is almost certainly not more than 1.5 million and possibly less than 1 million. This range of estimates allows for appreciable errors in the national and locally reported data we have examined, as well as possible changes since the 1976-1978 period represented by our principal sources, including the extraordinary influx of 200,000-300,000 refugee children from Indochina, Cuba, and Haiti. Even making these allowances, our figures are substantially below the original CESS estimates, which are 2 to 3 times any of our estimated numbers.

We are confident that our figures are in the correct range for we have used not one but four separate sets of figures to triangulate. That is, our reanalysis of the categories of children covered by the CESS data base, and our use of norms of reading achievement from the SES study, provide numbers which are in close correspondence to OCR data and to data from individual States.

Moreover, we believe our estimates reflect much closer correspondence with definitions of eligible children contained in legislation and in Departmental rules and guidelines. That is, we believe the CESS estimate is too high because it includes (1) children with little or no dependence on a non-English language, (2) children not enrolled in school, and (3) children who, while scoring below the "proficient" cutoffs on the CESS tests, are nevertheless performing satisfactorily in school.

For all of its defects, CESS represents a major pioneering effort in the field of language-measurement, and further studies may substantially enhance the value of these data. A major study to be conducted for the Department by the Census Bureau next summer (out of Title VII funds) will contribute to this end by administering the CESS tests to national samples of all children including native-English-speaking children, thus making it possible to establish realistic and comparable standards of proficiency at each age.

Looking to the future, we can confidently anticipate new challenges and opportunities in the field of population estimates for language-limited children. The Department of Education is still in the process of defining appropriate remedies for such children and new data will shortly become available from the 1980 Census.

While estimates of eligible children will undoubtedly change in response to new information and policy guidlines, we believe future estimates must continue to reflect the central concerns of the present study: The application of specific tests of dependence on a non-English language and appropriately normed measures to determine the child's English language limitations.

REFERENCES

Dulay, Heidi, and Burt, Marina. "The Relative Proficiency of Limited English Proficient Students." In Alatis, J.E. (ed.), Current Issues in Bilingual Education. Washington, D.C.: Georgetown University Press, 1980.

Federal Register. Nondiscrimination Under Programs Receiving Federal Assistance Through the Department of Education: Effectuation of Title VI of the Civil Rights Act of 1964. Vol. 45, No. 152, August 5, 1980, pp. 52052-52075.

Hemenway, Judith A. et al. The Measures and Variables in the Sustaining Effects Study. System Development Corporation, Santa Monica, California, 1978.

Hoepfner, Ralph et al. The Sample for the Sustaining Effects Study and Projections of Its Characteristics to the National Population. System Development Corporation, Santa Monica, California, 1977.

L. Miranda and Associates. Children's English and Services Study: Technical Report on Collection and Analysis of Pupil Survey Responses. L. Miranda and Associates, Inc., Bethesda, Maryland, 1979.

Milne, Ann M., and Goubert, Jan M. Students with a Primary Language Other Than English: Distribution and Service Rates. AUI Policy Research, Washington, D.C., 1981.

Office for Civil Rights, Directory of Elementary and Secondary Districts and Schools in Selected School Districts: School Year 1978-1979, Vol. 1, U.S. Department of Education, Washington, D.C., 1979. pp. xiv-xvi.

O'Malley, J. Michael. Children's English and Services Study: Language Minority Children with Limited English Proficiency in the United States. InterAmerica Associates, Inc., Rosslyn, Virginia, 1981.

System Development Corporation. A Compilation of the Sustaining Effects Study Instruments. System Development Corporation, Santa Monica, California, 1979.

U.S. Department of Education. Justification of Appropriation Estimates for Committee on Appropriations, Fiscal Year 1981, Vol. 1, U.S. Department of Education, Washington, D.C., 1980(a).

_____. Preliminary Cost Estimates of Title VI Language Minority Rulemaking. Paper submitted to the Council on Wage and Price Controls, August 11, 1980(b).